

DEPARTMENT OF THE INTERIOR**Fish and Wildlife Service****50 CFR Part 17****Endangered and Threatened Wildlife and Plants; Proposed Endangered Status and Critical Habitat for the Bay Checkerspot Butterfly (*Euphydryas Editha Bayensis*)**

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: The Service proposes to list the bay checkerspot butterfly as an endangered species. Historically known from the San Francisco Peninsula and outer Coast Range to the south and east of the peninsula, the bay checkerspot butterfly has suffered a tremendous reduction in number and range. Of the 16 known colonies, 11 colonies have been extirpated. Only five colonies remain and two of these are threatened with imminent loss, if they are not already gone. Critical habitat in San Mateo and Santa Clara Counties, California, is included with this proposed rule. The proposed rule would provide protection to remaining wild populations of this subspecies. The Service seeks data and comments from the public on this proposal. The Service is requesting information on environmental and economic impacts and effects upon small business entities that would result from designating critical habitat for the bay checkerspot butterfly.

DATES: Comments from all interested parties must be received by November 13, 1984. Public hearing requests must be received by October 26, 1984.

ADDRESS: Comments and materials concerning this proposal should be sent to Mr. Sanford Wilbur, Endangered Species Coordinator, U.S. Fish and Wildlife Service, Lloyd 500 Building, Suite 1692, 500 NE. Multnomah Street, Portland, Oregon 97232. Comments and materials received will be available for public inspection by appointment during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Mr. Sanford Wilbur, Endangered Species Coordinator, Lloyd 500 Building, Suite 1692, 500 NE. Multnomah Street, Portland, OR 97232 (503/231-6131); or Mr. John L. Spinks, Chief, Office of Endangered Species, Fish and Wildlife Service, Washington, D.C. 20240, (703/235-2771).

SUPPLEMENTARY INFORMATION:**Background**

Since 1960, the bay checkerspot butterfly (*Euphydryas editha bayensis*) has been the subject of extensive research by Dr. Paul R. Ehrlich and his associates at Stanford University. The presence of 16 populations or colonies of this butterfly on the San Francisco Peninsula as well as on the inner Coast Range to the south and east of the San Francisco Peninsula has been documented (Ehrlich and Murphy 1981, Murphy and Ehrlich 1980). The presence of additional colonies is indicated by museum records, but they were destroyed before the exact location of their habitat became known. The bay checkerspot butterfly is restricted to grassland areas on shallow Montara or other serpentine soils that support the butterfly's larval foodplants (Ehrlich *et al.* 1975). The annual plantain (*Plantago erecta*) is the primary larval foodplant and a hemiparasitic annual (*Orthocarpus densiflorus*) is the obligatory secondary larval foodplant (Singer 1971).

Of the 16 known colonies, 11 have been extirpated, two others are near extinction or possibly already extinct, and the remaining colonies face the likelihood of extinction. Colonies have been eliminated in the course of freeway construction (Hillsborough and San Mateo colonies and part of the Edgewood colony), subdivision construction and the introduction of exotic plants (Twin Peaks, Mt. Davidson, Brisbane, Joaquin Miller and San Leandro colonies), and overgrazing by livestock coupled with drought (Morgan Territory Road, Silver Creek, Coyote Reservoir and Uvas colonies) (Murphy and Ehrlich 1980). Four of the five remaining populations, San Bruno Mountain, Woodside, Jasper Ridge and Edgewood colonies, occur in San Mateo County. Because the San Bruno Mountain colony fluctuates greatly in numbers, it may be near extinction. The Woodside colony is also near extinction if not already extinct, as no bay checkerspot butterflies were seen there during 1982. The largest and relatively most secure colony, Morgan Hill, occurs in Santa Clara County.

Most of the habitat of the Woodside Colony has recently been eliminated by condominium development, thereby greatly reducing the viability of this colony. The Jasper Ridge colony, consisting of two demographic units, is located on a biological preserve of Stanford University and although small, does not appear to face imminent extinction. One of two large colonies is located at Edgewood County Park and

may be threatened by proposed construction of a golf course and other recreational facilities. The other, at Morgan Hill, is threatened by overgrazing and by a proposed sanitary landfill. Historically, several smaller populations apparently underwent natural extinction and subsequent recolonization from nearby colonies (Ehrlich 1965, Ehrlich *et al.* 1975). Therefore, for this butterfly to maintain itself in nature, preservation of several colonies in close proximity to each other may be necessary in order for dispersal and recolonization to proceed. Preservation of the two larger colonies, Edgewood and Morgan Hill, also appears necessary to insure that natural climatic fluctuations do not eliminate the depleted species.

On October 21, 1980, the Service was petitioned by Dr. Bruce O. Wilcox, Mr. Dennis D. Murphy, and Dr. Paul R. Ehrlich to list the bay checkerspot butterfly as an endangered species. The petition was supplemented by Dr. Wilcox and Mr. Murphy with a letter and other materials received on December 11, 1980. The Service included this taxon in a Federal Register Notice of Review on February 13, 1981 (46 FR 43709). A review of the status of the bay checkerspot was made to determine if it should be added to the U.S. List of Endangered and Threatened Wildlife. On October 13, 1983, the Service found this proposed listing to be warranted but precluded by other pending listing actions, and reported this finding in the Federal Register on January 20, 1984 (49 FR 2485). Such a finding requires that a new one-year petition action deadline be established, pursuant to Section 4(b)(3)(C)(i) of the Endangered Species Act, as amended. This proposed rule reaffirms the finding that the petitioned action is warranted, and proposes to implement the action in accordance with Section 4(b)(3)(B)(ii) of the Act.

Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (codified at 50 CFR Part 424; see proposed revisions to accommodate 1982 amendments in the Federal Register of August 8, 1983) set forth the procedures for adding species to the Federal list. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in Section 4(a)(1). These factors and their application to the bay checkerspot butterfly (*Euphydryas editha bayensis*) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Only five of the sixteen known populations of the bay checkerspot butterfly are still extant and two of the five are near extinction. The construction of Interstate Highway 280 during 1970 eliminated colonies at Hillsborough and San Mateo, and bisected the Edgewood colony. Habitat alteration over the past decade or longer, primarily the result of subdivision construction and introduction of non-native plants, has resulted in the disappearance of colonies at Twin Peaks, Mt. Davidson, Brisbane, Joaquin Miller, and San Leandro. Drought in 1977 dealt a final blow to colonies at Morgan Territory Road, Silver Creek, Coyote Reservoir and Uvas Valley, where the habitat had been subjected to years of overgrazing by livestock.

One of the remaining populations, the Woodside colony, is close to extinction. Its population numbers have dropped from approximately 10,000 in 1979 to below 100 in 1982, after construction of a condominium complex removed all but one acre of the butterfly's habitat (D. Murphy, pers. comm.). No butterflies were observed at this site during 1983. The San Bruno Mountain colony, another of the remaining populations, is not secure because it is prone to large population fluctuations that occasionally bring it to the brink of extinction (D. Murphy, pers. comm.; Murphy and Ehrlich 1980). The Edgewood, Jasper Ridge, and Morgan Hill colonies are the only three remaining populations of the bay checkerspot butterfly that appear to be viable. However, the Edgewood colony is presently threatened with the construction of a golf course and other recreational facilities on San Mateo Regional Park District land. The Jasper Ridge colony is protected as a biological preserve, but is small enough to be susceptible to large fluctuations in population size. The Morgan Hill colony is the largest and relatively the most secure, but portions of this colony are threatened by overgrazing and a proposed sanitary fill.

B. Overutilization for Commercial, Recreational, Scientific or Educational Purposes

Although specimens of the bay checkerspot butterfly are valuable to collectors, overcollecting has not been identified as a threat to any colony. To discourage unnecessary collecting, Stanford University offers old

specimens from its museum on an exchange basis.

C. Disease or Predation.

Ninety to ninety-nine percent of the bay checkerspot butterfly larvae die of starvation while in prediapause instars. Three to twenty-four percent of the remaining postdiapause larvae at the Jasper Ridge Colony are killed by three species of parasitoids (Ehrlich *et al.* 1975). Because of high prediapause mortality and because the greatest parasitism only occurs during years of high butterfly numbers, the high rate of parasitism is not a major factor in determining the size of any bay checkerspot butterfly population. In years of large butterfly numbers, the majority of the butterflies still escape parasitism and provide recruitment in subsequent years.

D. The Inadequacy of Existing Regulatory Mechanisms

The bay checkerspot butterfly is not given protection under any State or local regulations. Federal listing of this butterfly would provide protection to wild populations.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Habitat damage can reduce the size of a colony to a level at which natural climatic changes lead to extinction. The drought of 1976 and 1977 in association with overgrazing caused the disappearance of four colonies of the bay checkerspot butterfly (Murphy and Ehrlich 1980), and greatly reduced the Jasper Ridge population (Ehrlich *et al.* 1980). This drought also caused the extinction of some populations of another subspecies of *Euphydryas editha* (Ehrlich *et al.* 1980). It seems likely that a particularly severe or prolonged drought would be detrimental to most of the remaining colonies.

The bay checkerspot butterfly occurs on grasslands of Montara or other serpentine soils that are often surrounded by chaparral vegetation. Two of these disjunct colonies are small enough to be subject to periodic natural extinctions and subsequent recolonization by butterflies from a nearby colony. As habitat is lost and the number of colonies decreases, the distances among colonies become greater and the chance of recolonization becomes less.

Critical Habitat

Critical habitat, as defined by Section 3 of the Act and at 50 CFR Part 424, means: (i) The specific areas within the geographical area occupied by a species,

at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to conservation of the species and (II) that may require special management considerations or protection, and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

The Act in Section 4(a)(3) requires that critical habitat be designated to the maximum extent prudent and determinable concurrent with the determination that a species is endangered or threatened. Critical habitat for the bay checkerspot butterfly is proposed to include approximately 1,620 acres in San Mateo County and 6,678 acres in Santa Clara County, California. The proposed critical habitat area encompasses approximately 200 acres along the eastern one-half of San Bruno Mountain including portions of the County Park, upper slopes of Owl Canyon, and upper management units surrounding the Guadalupe Valley Quarry excavation area (County of San Mateo, 1982); approximately 600 acres in Edgewood County Park and adjacent State Fish and Game Refuge; approximately 60 acres along the Redwood City and Woodside City limits; approximately 760 acres in the Jasper Ridge Biological Preserve; and 6,678 acres in the Morgan Hill area. The area proposed does not include the entire historic habitat of this butterfly and modifications to critical habitat descriptions may be proposed in the future.

Section 4(b)(8) of the Act requires, for any proposed rule that includes critical habitat, a brief description and evaluation of those public or private activities which may adversely modify such habitat if undertaken or which may be affected by such designation. Such activities are identified for this subspecies as follows:

1. Grazing of livestock, which could destroy larval or adult food sources.
2. Introduction of exotic plants that might compete with larval or adult food sources.
3. Application of herbicides or insecticides.
4. Any other activity causing damage or removal of native vegetation.

Three activities involving Federal agencies are presently known that may have an impact on the habitat of the bay checkerspot butterfly. These three activities include the proposed golf course and recreational facilities at Edgewood Park, the habitat conservation plan for San Bruno

Mountain and the proposed sanitary landfill at Morgan Hill. At Edgewood Park, the National Park Service maintains an easement and it may therefore be necessary to obtain Park Service permission prior to construction of new recreational facilities. Construction of the golf course could seriously jeopardize the Edgewood Colony by destroying significant habitat areas. The San Bruno Mountain Colony would undergo few direct effects as a result of residential development of the mountain, as addressed in the San Bruno Mountain Area Habitat Conservation Plan (County of San Mateo, 1982), because the colony is on county parkland that is designated as conserved habitat in the Plan and therefore is not scheduled for development. The habitat conservation plan requires the county to maintain the area utilized by the bay checkerspot butterfly on San Bruno Mountain as open-space with only limited development for hiking trails and vista points. At Morgan Hill, the Environmental Protection Agency must approve plans for development of the sanitary landfill.

The Service is notifying Federal agencies that may have jurisdiction over the land and water under consideration in this proposed action. Section 4(b)(2) of the Act requires the Service to consider economic and other impacts of designating a particular area as critical habitat. The Service will reevaluate the geographic critical habitat designation at the time of the final rule, after considering all additional information obtained.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for land acquisition and cooperation with the States, and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required by Federal agencies and taking and harm prohibitions are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened. Regulations implementing

this Interagency Cooperation provision of the Act are codified at 50 CFR Part 402, and are now under revision (see proposal at 48 FR 29989; June 29, 1983). Section 7(a)(4) requires Federal agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. When a species is listed, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If an action may affect a listed species, the Federal agency must enter into consultation with the Service.

The Act and its implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. With respect to the bay checkerspot butterfly all the prohibitions of section 9(a)(1) of the Act, implemented by 50 CFR 17.21, would apply. These prohibitions, in part, would make it illegal for any person subject to the jurisdiction of the United States to take, import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale this species in interstate or foreign commerce. It also would be illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that was illegally taken. Certain exceptions would apply to agents of the Services and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered animal species under certain circumstances. Regulations governing permits are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes or to enhance the propagation or survival of the species or for incidental take. The permit issued to the County of San Mateo and the cities of South San Francisco, Brisbane and Daly City under Section 10(a) for incidental take of three endangered butterfly species does not cover the Bay checkerspot. As a result, listing of the Bay checkerspot may require issuance of a new or amended Section 10(a) permit. In some instances, permits may be issued during a specified period of time to relieve undue economic hardship that would be suffered if such relief were not available.

Public Comments Solicited

The Service intends that any final rule adopted will be as accurate and as effective as possible in the conservation

of each endangered or threatened species. Therefore, any comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning any aspect of these proposed rules are hereby solicited. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or the lack thereof) to the bay checkerspot butterfly;

(2) The location of any additional populations of the bay checkerspot butterfly and the reasons why any habitat of this species should or should not be determined to be critical habitat as provided by section 4 of the Act;

(3) Additional information concerning the range and distribution of this species;

(4) Current or planned activities in the subject areas and their possible impacts on the bay checkerspot butterfly; and

(5) Any foreseeable economic and other impacts resulting from the designation of critical habitat.

Final promulgation of the regulations on the bay checkerspot butterfly will take into consideration the comments and any additional information received by the service, and such communication may lead to adoption of a final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be filed within 45 days of the date of the proposal. Such requests should be made in writing and

addressed to the Regional Director, U.S. Fish and Wildlife Service, Lloyd 500 Building, Suite 1692, 500 NE. Multnomah Street, Portland, Oregon 97232.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined by the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to Section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the *Federal Register* on October 25, 1983 (48 FR 49244).

References

- County of San Mateo. 1982. San Bruno Mountain area habitat conservation plan. Two volumes, 409 pp.
- Ehrlich, P.R. 1965. The population of the butterfly *Euphydryas editha*. The structure of the Jasper Ridge Colony. *Evolution* 19:327-338.
- Ehrlich, P.R. and D.D. Murphy. 1981. The population biology of checkerspot butterflies (*Euphydryas*). *Biol. Zentral* 100:613-629.
- Ehrlich, P.R., R.R. White, M.C. Singer, S.W. McKechnie and L.E. Gilbert. 1975. Checkerspot butterflies: a historical perspective. *Science* 188:221-228.
- Ehrlich, P.R., D.D. Murphy, M.C. Singer, C.B. Sherwood, R.R. White and I.L. Brown. 1980. Extinction, reduction, stability and increase: the response of checkerspot butterfly (*Euphydryas*) populations to the California drought. *Oecologia* 48:101-105.
- Murphy, D.D. and P.R. Enrich. 1980. Two California checkerspot butterfly subspecies: one new, one on the verge of

extinction. *J. Lepidopterists' Soc.* 34:316-320.

Author

The primary author of this proposed rule is Dr. Jack E. Williams, Sacramento Endangered Species Office, U.S. Fish and Wildlife Service, 1230 "N" Street, 14th Floor, Sacramento, California 95814. Dr. George E. Drewry of the Service's Washington Office of Endangered Species served as editor.

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Proposed Regulations Promulgation

PART 17—[AMENDED]

Accordingly, it is hereby proposed to amend Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, as set forth below:

1. The authority citation for Part 17 reads as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 98 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. It is proposed to amend Section 17.11(h) by adding the following in alphabetical order under Insects to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rule
Common name	Scientific name						
Insects							
Butterfly, bay checkerspot	Euphydryas editha bayensis.....	U.S.A. (CA) ..	NA	E	17.95(j).....	NA	

3. It is further proposed to amend § 17.95(i) by adding critical habitat of the bay checkerspot butterfly as follows: The position of this and any following critical habitat entries under § 17.95(i) will be determined at the time of publication of a final rule.

§ 17.95 Critical habitat—fish and wildlife

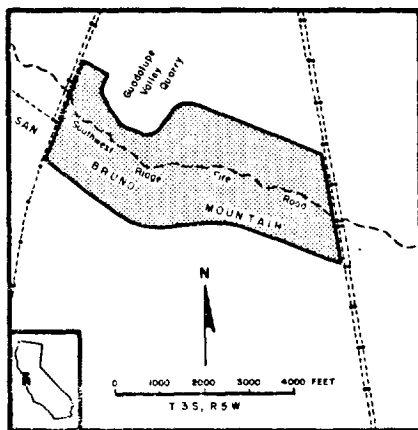
(i) Insects

* * * * *

Bay Checkerspot Butterfly

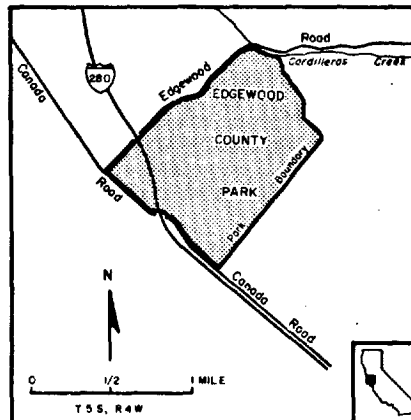
(*Euphydryas editha bayensis*) California, San Mateo County

1. San Bruno Mountain Zone—approximately 200 acres in T3S, R5W. Designated area consists of a strip 1,000 ft wide on each side of the Southwest Ridge Fire Road, as measured from the center of said road; limited on the east and west, respectively, by eastern and western transmission line corridors of Pacific Gas and Electric Company; but excluding the existing excavation area of Guadalupe Valley Quarry.

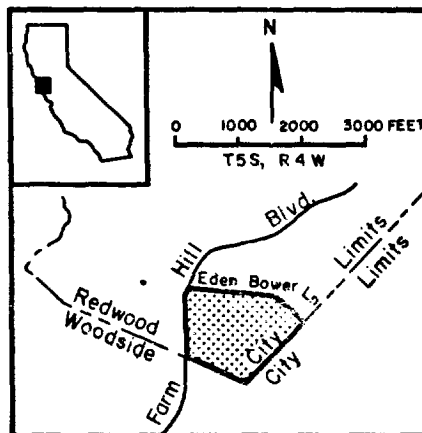


2. Edgewood Park Zone—approximately 600 acres of T5S, R4W and bounded as follows: beginning at the intersection of

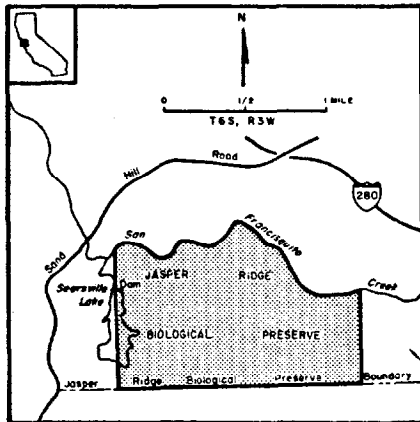
Canada Road and Edgewood Road; thence continuing northeasterly, following Edgewood Road, to Edgewood County Park boundary at Cordilleras Creek; thence continuing southeasterly and southwesterly, following said Park boundary, to its intersection with Canada Road; thence continuing northwesterly, following Canada Road, to the point of origin.



3. Woodside Zone—approximately 60 acres in T5S, R4W, bounded as follows: on the West by Farm Hill Boulevard, on the north and northeast by Eden Bower Lane, and on the southeast and southwest by the boundary between city limits of Woodside and Redwood City.



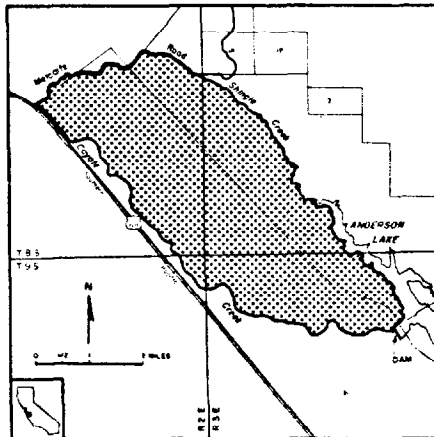
4. Jasper Ridge Zone—approximately 760 acres in T6S, R3W, within the Jasper Ridge Biological Preserve; bounded on the north by San Francisquito Creek, on the west by a north-south line bisecting the spillway of the Searsville Lake Dam at San Francisquito Creek, on the south by the Jasper Ridge Biological Preserve boundary, and on the east by a line parallel to and 1.5 miles east of the west boundary.



California, Santa Clara County

5. Morgan Hill Zone—approximately 6,678 acres in T9S, R3E; T8S, R3E; T9S, R2E; and

T8S, R2E; bounded as follows: on the north by Metcalfe Road, on the west and south by Coyote Creek, and on the northeast by Anderson Lake and Shingle Creek.



Known constituent elements of the designated areas include serpentine grassland with adequate populations of the foodplants *Plantago erecta* and *Orthocarpus densiflorus*.

* * * * *

Dated: August 14, 1984.

G. Ray Arnett,

Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 84-23989 Filed 9-10-84; 8:45 am]

BILLING CODE 4310-55-M